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EXAMINER

KHAKHAR, NIRAV K

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/693,004 | Applicant(s) HUNT ET AL. | |
| | Examiner NIRAV K. KHAKHAR | Art Unit 2167 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 and 33-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 and 33-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/30/09, 5/12/09</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 30 January, 2009, has been entered.

Remarks

2. Examiner acknowledges the supplemental amendment entered 23 February, 2009, including amendments.
3. Claims 1 – 28 and 33 – 40 are now pending.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2167

5. Claims 1 – 28 and 33 – 40 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Caswell, et al., U.S. Pat. No. 6,336,138 (hereafter, “Caswell”), in view of Mandato, U.S. PG-Pub. No. 2002/0010771 (hereafter, “Mandato”).

As to **Claim 1**, Caswell discloses: One or more computer readable storage media having stored thereon a plurality of instructions that implement a distributed computing system in a distributed computing environment based upon a schema, the schema comprising:

at least one definition of a distributed computing system module to be implemented in the distributed-computing environment (*col. 5, lines 49 – 52, referring to defining nodes of various types, and generally to the creation of network service models*); and

at least one relationship that identifies potential links between the modules of the distributed-computing system, such that the schema is used by a development tool to modify the definition and relationship (*col. 5, lines 49 – 52, referring to defining network links*).

Caswell does not appear to explicitly disclose a deployment tool to implement to module according to the definition and the relationship.

Mandato discloses: a deployment tool to implement to module according to the definition and the relationship (*[0029] – [0030], referring to the modular approach to development, which enables progressive deployment of the architecture, and a*

component coordinator which allows deployment configuration, activation, and disposal of components).

It would have been obvious to one having ordinary skill in this art at the time of the invention, having the teachings of Caswell and Mandato before him/her to have modified the system of Caswell with the deployment-level architecture of Mandato, to enable lifecycle control of component modules.

As to **Claim 2**, Caswell, as modified, discloses: the schema being further used by a management tool (*Caswell, col. 3, line 66 through col. 4, line 3, referring to the system being used to support management functions*).

As to **Claim 3**, Caswell, as modified, discloses: the schema allowing a user of the development tool to identify desired operational intentions of the at least one distributed computing system module (*Caswell, col. 5, lines 57 – 62, referring to the “health” or state of nodes; and Mandato, [0029], referring to components being chained together to combine their functionality, implying that such functionality, or module intent, is determined before such chaining can take place*).

As to **Claim 4**, Caswell, as modified, discloses: the at least one definition includes a resource definition (*Caswell, col. 5, lines 57 – 62, referring to the “health” or state of nodes*), a component definition (*Caswell, col. 6, lines 53 – 59,*

referring to application-specific attributes), and an endpoint definition (Caswell, col. 19, lines 11 – 31, referring to the detection of packet attributes as they travel between nodes).

As to **Claim 5**, Caswell, as modified, discloses: the at least one definition including a resource definition that specifies runtime behavior contained within a distributed computing system module (*Mandato, [0029] – [0030], referring to the modular approach to development, which enables progressive deployment of the architecture, and a component coordinator which allows deployment configuration, activation, and disposal of components*).

As to **Claim 6**, Caswell, as modified, discloses: the at least one definition includes a component definition that describes a self-contained, independently deployable part of the distributed computing system (*Mandato, [0029] – [0030], referring to the modular approach to development, which enables progressive deployment of the architecture, and a component coordinator which allows deployment configuration, activation, and disposal of components*).

As to **Claim 7**, Caswell, as modified, discloses: the at least one definition including an endpoint definition that describes communication endpoints exposed by the distributed computing system module (*Mandato, Table 1, referring to*

Stream: the sequence of information being transmitted from the Flow source endpoint to the destination endpoint of a given connection).

As to **Claim 8**, Caswell, as modified, discloses: the at least one relationship is the embodiment of at least one potential communication interaction between endpoint definitions of two or more distributed computing system modules, the relationship comprising one or more of: a containment relationship (*Caswell, col. 5, lines 49 – 52, referring to defining nodes of various types*), a delegation relationship (*Caswell, col. 5, lines 49 – 52, referring to defining nodes of various types*), a connections relationship (*Caswell, col. 19, lines 11 – 31, referring to the detection of packet attributes as they travel between nodes*), a hosting relationship (*Caswell, col. 5, lines 53 – 57, referring to dependencies among nodes*) and a reference relationship (*Caswell, col. 8, lines 14 – 30, referring to hierarchical relationships amongst nodes*).

As to **Claim 9**, Caswell, as modified, discloses: the at least one relationship including a containment relationship that describes the ability of a particular definition to contain members of other definitions (*Caswell, col. 5, lines 49 – 52, referring to defining nodes of various types*).

As to **Claim 10**, Caswell, as modified, discloses: the at least one relationship includes a delegation relationship that exposes members contained in a

particular definition (*Caswell, col. 5, lines 49 – 52, referring to defining nodes of various types*).

As to **Claim 11**, Caswell, as modified, discloses: the at least one relationship including a connections relationship that identifies available communication interactions between a plurality of definitions (*Caswell, col. 19, lines 11 – 31, referring to the detection of packet attributes as they travel between nodes*).

As to **Claim 12**, Caswell, as modified, discloses: the at least one relationship including a hosting relationship that describes dependencies between a plurality of definitions (*Caswell, col. 5, lines 53 – 57, referring to dependencies among nodes*).

As to **Claim 13**, Caswell, as modified, discloses: the at least one relationship includes a reference relationship that identifies ordering relationships between a plurality of definitions (*Caswell, col. 8, lines 14 – 30, referring to hierarchical relationships amongst nodes*).

As to **Claim 14**, Caswell, as modified, discloses: an abstract portion associated with templates for distributed-applications (*Caswell, col. 5, lines 37 – 44, referring to template-driven modeling of a hypothetical network*) and a concrete portion associated with particular implementations of distributed-applications (*Caswell,*

col. 7, lines 60 – 65, referring to a service model instance which describes network elements that actually exist in a particular network).

As to **Claim 15**, Caswell, as modified, discloses: the communication of settings across the plurality of relationships (*Caswell, col. 16, lines 20 – 22, referring to settings being derived and communicated*).

As to **Claim 16**, Caswell, as modified, discloses: the communication of application runtime behavioral information across the plurality of relationships (*Caswell, col. 19, lines 43 - 47, referring to the communication of entity "health"*).

As to **Claim 17**, Caswell discloses: one or more computer readable storage media having stored thereon a plurality of instructions that implement a schema, the schema comprising:

at least one distributed computing system module definition of a portion of a distributed computing system associated with a distributed-computing system environment (*col. 6, lines 53 – 59, referring to application-specific attributes*); and at least one endpoint definition of communication information associated with the system (*Caswell, col. 19, lines 11 – 31, referring to the detection of packet attributes as they travel between nodes*).

Caswell does not appear to explicitly disclose: at least one resource definition that specifies module runtime behavior associated with the system; or.

Mandato discloses: at least one resource definition that specifies module runtime behavior associated with the system ([0029] – [0030], *referring to the modular approach to development, which enables progressive deployment of the architecture, and a component coordinator which allows deployment configuration, activation, and disposal of components*).

It would have been obvious to one having ordinary skill in this art at the time of the invention, having the teachings of Caswell and Mandato before him/her, to have modified the system of Caswell with the runtime behavior definitions of Mandato, to enable lifecycle control of component modules.

As to **Claim 18**, Caswell, as modified, discloses: at least one relationship that identifies links between entities in the distributed-computing system (*Caswell, col. 5, lines 49 – 52, referring to defining network links*).

As to **Claim 19**, Caswell, as modified, discloses: a containment relationship that describes the ability of a particular definition to contain members of other definitions (*Caswell, col. 5, lines 49 – 52, referring to defining nodes of various types*).

As to **Claim 20**, Caswell, as modified, discloses: a communication relationship that identifies available communication interactions between a plurality of

definitions (*Caswell, col. 5, lines 49 – 52, referring to defining nodes of various types*).

As to **Claim 21**, Caswell, as modified, discloses: the schema being used by any of: a development tool, a deployment tool, or a management tool (*Caswell, col. 3, line 66 through col. 4, line 3, referring to the system being used to support management functions*).

As to **Claim 22**, Caswell, as modified, discloses: the schema models a target system on which the application will be installed (*Caswell, col. 7, lines 60 – 65, referring to a service model instance which describes network elements that actually exist in a particular network*).

As to **Claim 23**, Caswell discloses: One or more computer readable storage media having stored thereon a plurality of instructions that when executed by a computer implement a design tool, the design tool comprising:
a system definition model to enable defining abstractly the specifications of distributed-computing environments and distributed computing systems (*col. 5, lines 37 – 44, referring to template-driven modeling of a network*).

Caswell does not appear to explicitly disclose: a schema to dictate how functional operations modules within the system definition model are to be specified.

Art Unit: 2167

Mandato discloses: a schema to dictate how functional operations modules within the system definition model are to be specified ([0029], *referring to components being chained together to combine their functionality, implying that such functionality, or module intent, is determined before such chaining can take place*).

As to **Claim 24**, Caswell, as modified, discloses: the design tool being a distributed-application development tool (*Caswell, col. 6, lines 53 – 59, referring to application-specific tools*).

As to **Claim 25**, Caswell, as modified, discloses: the design tool being a distributed-application deployment tool (*Mandato, [0029] – [0030], referring to the modular approach to development, which enables progressive deployment of the architecture, and a component coordinator which allows deployment configuration, activation, and disposal of components*).

As to **Claim 26**, Caswell, as modified, discloses: the design tool is a distributed-application management tool (*Caswell, col. 3, line 66 through col. 4, line 3, referring to the system being used to support management functions*).

Art Unit: 2167

As to **Claim 27**, Caswell, as modified, discloses: the distributed-applications being scale-invariant (*Caswell, col. 9, lines 32 – 46, referring to modeling a network regardless of geographic scope*).

As to **Claim 28**, Caswell discloses: a data structure stored on one or more computer-readable media that is instantiated in accordance with a schema, the schema being accessible by a plurality of tools, the plurality of tools comprising: an application development tool, whereby the application development tool defines a system comprised of communicating software and hardware components during a design phase (*col. 5, lines 49 – 52, referring to defining nodes of various types, and generally to the creation of network service models*); the schema comprising:

at least one system definition of a component of a scale-invariant distributed-application (*col. 5, lines 49 – 52, referring to defining nodes of various types; and col. 9, lines 32 – 46, referring to modeling a network regardless of geographic scope*);

at least one containment relationship specifying an ability of a particular definition to contain members of other definitions (*col. 5, lines 49 – 52, referring to defining nodes of various types*);

at least one delegation relationship that exposes members contained in the particular definition (*col. 5, lines 49 – 52, referring to defining nodes of various types*);

Art Unit: 2167

at least one communication relationship that specifies available communication interactions between a plurality of definitions (*col. 19, lines 11 – 31, referring to the detection of packet attributes as they travel between nodes*);

at least one hosting relationship that specifies dependencies between the plurality of definitions (*col. 5, lines 53 – 57, referring to dependencies among nodes*); and

at least one reference relationship that specifies ordering relationships between the plurality of definitions (*col. 8, lines 14 – 30, referring to hierarchical relationships amongst nodes*).

Caswell does not appear to explicitly disclose:

an application deployment tool for facilitating deployments to a plurality of host environments and a plurality of scales, whereby the application deployment tool facilitates utilizing a definition of the system developed by the application development tool to perform operations comprising:

- deploying the system;

- allocating software and hardware; and

- configuring the software and hardware; and

an application management tool, the application management tool facilitating new management tools to perform operations comprising:

- driving resource allocation;

- managing configuration;

- upgrading; and

automatic processing; and
the schema comprising:
at least one resource definition of an application runtime behavior associated with the component; and
at least one endpoint definition of communication information associated with the component.

Mandato discloses:

an application deployment tool for facilitating deployments to a plurality of host environments and a plurality of scales, whereby the application deployment tool facilitates utilizing a definition of the system developed by the application development tool to perform operations ([0029] – [0030], *referring to the modular approach to development, which enables progressive deployment of the architecture, and a component coordinator which allows deployment configuration, activation, and disposal of components*) comprising:

deploying the system;
allocating software and hardware; and
configuring the software and hardware; and

an application management tool (*Fig. 1, Component Coordinator 10*), the application management tool facilitating new management tools to perform operations comprising:

driving resource allocation (*Table 1: Intserv*);
managing configuration (*Table 5, configuration tool*);

upgrading (*Table 1, QoS Brokers upgrading QoS in a controlled manner*);
and

automatic processing (*[0093], automatic recovery*); and
the schema comprising:

at least one resource definition of an application runtime behavior associated with the component (*[0029] – [0030], referring to the modular approach to development, which enables progressive deployment of the architecture, and a component coordinator which allows deployment configuration, activation, and disposal of components*); and

at least one endpoint definition of communication information associated with the component (*Table 1, referring to Stream: the sequence of information being transmitted from the Flow source endpoint to the destination endpoint of a given connection*).

It would have been obvious to one having ordinary skill in this art at the time of the invention, having the teachings of Caswell and Mandato before him/her, to have modified the system of Caswell with the various features of Mandato, in order to utilize the template created by the system of Caswell to deploy an application tool as from Mandato.

As to **Claim 33**, Caswell discloses: a method comprising: creating a data structure in accordance with a schema, the schema defining:

Art Unit: 2167

at least one definition of entities in a distributed-computing system (*col. 5, lines 49 – 52, referring to defining nodes of various types*),

at least one containment relationship specifying the ability of a particular definition to contain members of other definitions (*col. 5, lines 49 – 52, referring to defining nodes of various types*),

at least one delegation relationship that exposes members contained in the particular definition (*col. 5, lines 49 – 52, referring to defining nodes of various types*),

at least one hosting relationship that specifies dependencies between the plurality of definitions (*col. 5, lines 53 – 57, referring to dependencies among nodes*),

at least one reference relationship that specifies ordering relationships between the plurality of definitions (*col. 8, lines 14 – 30, referring to hierarchical relationships amongst nodes*); and

populating the data structure (*col. 7, lines 36 – 50, referring to generating a model of a network based on discovered metrics and attributes*).

Caswell does not appear to explicitly disclose: at least one communication relationship that specifies available communication interactions between a plurality of definitions.

Mandato discloses: at least one communication relationship that specifies available communication interactions between a plurality of definitions (*Table 1,*

referring to Stream: the sequence of information being transmitted from the Flow source endpoint to the destination endpoint of a given connection).

It would have been obvious to one having ordinary skill in this art at the time of the invention, having the teachings of Caswell and Mandato before him/her, to have modified the system of Caswell with the communication relationship of Mandato, such that control over nodal communication is well-defined.

As to **Claim 34**, Caswell discloses: One or more computer readable storage media having stored thereon a plurality of instructions that, when executed by a processor, cause the processor to perform a method, the method comprising: loading a definition of entities in a distributed computing-system (*col. 5, lines 49 – 52, referring to defining nodes of various types*); and loading information, such that the definition and the information are used to develop distributed-computing system (*col. 5, lines 49 – 52, referring to defining network links*).

Caswell does not explicitly disclose: the information being a relationship that specifies communication links between entities in the distributed computing system, or the definition and relationship being used to deploy the distributed computing system.

Mandato discloses: the information being a relationship that specifies communication links between entities in the distributed computing system (*Table 1, referring to Stream: the sequence of information being transmitted from the*

Flow source endpoint to the destination endpoint of a given connection), or the definition and relationship being used to deploy the distributed computing system ([0029] – [0030], referring to the modular approach to development, which enables progressive deployment of the architecture, and a component coordinator which allows deployment configuration, activation, and disposal of components).

It would have been obvious to one having ordinary skill in this art at the time of the invention, having the teachings of Caswell and Mandato before him/her to have modified the system of Caswell with the deployment-level architecture of Mandato, to enable lifecycle control of component modules.

As to **Claim 35**, Caswell, as modified, discloses: the definition and the relationship being further used during management of the distributed-computing system (*Mandato, Fig. 1, Component Coordinator 10*).

As to **Claim 36**, Caswell, as modified, discloses: the definition including a resource definition (*Caswell, col. 5, lines 57 – 62, referring to the “health” or state of nodes*), a system definition (*Caswell, col. 6, lines 53 – 59, referring to application-specific attributes*) and an endpoint definition (*Caswell, col. 19, lines 11 – 31, referring to the detection of packet attributes as they travel between nodes*).

As to **Claim 37**, Caswell, as modified, discloses: the relationship including a containment relationship (*Caswell, col. 5, lines 49 – 52, referring to defining nodes of various types*), a delegation relationship (*Caswell, col. 5, lines 49 – 52, referring to defining nodes of various types*), a communication relationship (*Caswell, col. 19, lines 11 – 31, referring to the detection of packet attributes as they travel between nodes*), a hosting relationship (*Caswell, col. 5, lines 53 – 57, referring to dependencies among nodes*) and a reference relationship (*Caswell, col. 8, lines 14 – 30, referring to hierarchical relationships amongst nodes*).

As to **Claim 38**, Caswell discloses: a method comprising:
loading a definition of entities in a distributed computing-system (*col. 5, lines 49 – 52, referring to defining nodes of various types*); and
loading information, such that the definition and the information are used to develop distributed-computing system (*col. 5, lines 49 – 52, referring to defining network links*).

Caswell does not explicitly disclose: the information being a relationship that specifies communication links between entities in the distributed computing system, or the definition and relationship being used to deploy and manage the distributed computing system.

Mandato discloses: the information being a relationship that specifies communication links between entities in the distributed computing system (*Table 1, referring to Stream: the sequence of information being transmitted from the*

Flow source endpoint to the destination endpoint of a given connection), or the definition and relationship being used to deploy ([0029] – [0030], referring to the modular approach to development, which enables progressive deployment of the architecture, and a component coordinator which allows deployment configuration, activation, and disposal of components) and manage the distributed computing system (Fig. 1, Component Coordinator 10).

It would have been obvious to one having ordinary skill in this art at the time of the invention, having the teachings of Caswell and Mandato before him/her to have modified the system of Caswell with the deployment-level architecture of Mandato, to enable lifecycle control of component modules.

As to **Claim 39**, Caswell discloses: the definition including a resource definition (*Caswell, col. 5, lines 57 – 62, referring to the “health” or state of nodes*), a system definition (*Caswell, col. 6, lines 53 – 59, referring to application-specific attributes*) and an endpoint definition (*Caswell, col. 19, lines 11 – 31, referring to the detection of packet attributes as they travel between nodes*).

As to **Claim 40**, Caswell discloses: the relationship including a containment relationship (*Caswell, col. 5, lines 49 – 52, referring to defining nodes of various types*), a delegation relationship (*Caswell, col. 5, lines 49 – 52, referring to defining nodes of various types*), a communication relationship (*Caswell, col. 19, lines 11 – 31, referring to the detection of packet attributes as they travel*

Art Unit: 2167

between nodes), a hosting relationship (*Caswell, col. 5, lines 53 – 57, referring to dependencies among nodes*) and a reference relationship (*Caswell, col. 8, lines 14 – 30, referring to hierarchical relationships amongst nodes*).

Response to Arguments

6. Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIRAV K. KHAKHAR whose telephone number is (571) 270-1004. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2167

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John R. Cottingham/
Supervisory Patent Examiner, Art Unit 2167

/M. L./
Primary Examiner, Art Unit 2159

/NIRAV K. KHAKHAR/
Examiner, Art Unit 2167